EVALUATION OF THE FINAL SEMESTER DESIGN STUDIO'S APPROACH OF BACHELOR OF SCIENCE IN ARCHITECTURE AT UNIVERSITI KEBANGSAAN MALAYSIA

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Abstract

In year 2015, the Department of Architecture (DoA) has obtained full five-year recognition from the Board of Architects Malaysia (LAM) for Bachelor of Science in Architecture starting 2014. In the accreditation process, the evaluation of design courses is the most important to describe the outcomes of the program. Architectural Design VI is the final design studio course before completing the degree. It sums up all the knowledge throughout the three years program. The outcomes of this course describe the ability, knowledge and potential of all students. While the course was designed to suit the requirements of LAM, it was also designed to achieve the architecture approach of DoA (which is National Architecture Identity). However, after 4 years of running the program along the outlined approach, evaluation has yet been completed whether the course has successfully achieved its objectives. Therefore, the objective of this paper is to evaluate whether the course can achieve the architecture approach of DoA, National Architecture Identity. A questionnaires survey was conducted for this study. The respondents were the final semester students. Two batches were selected, involving 23 students. The outcome from this study suggests that all the four strategies to fulfil the department's goal to incorporate 'national architecture identity' element in its program were successfully achieved in Architectural Design VI.

Keywords: Architecture, design studio, degree program.

1. Introduction

The Department of Architecture at Universiti Kebangsaan Malaysia (UKM) was established in November 2002 in which the enrolment of the first students was in

June 2003. In the year 2015, the 13th admission was accepted into the school. Two undergraduate courses are offered: Bachelor of Science in Architecture and Bachelor of Architecture (started on June 2005). During this period, the Department of Architecture (DoA) has obtained recognition of the Board of Architects Malaysia (LAM) Part 1 for Bachelor of Science in Architecture for two years beginning in July 2012 until mid-2014, and recently, in the year 2015, the program has received full five-year recognition starting 2014.

In the accreditation process, one of the most important courses is the Architectural Design VI which is the final design studio course before completing the degree. The outcome of this course describes the ability, knowledge and potential of each student. The course has been designed to suit the requirements of LAM as well as the architecture approach of DoA. The architecture approach of DoA differentiates the school to other schools in Malaysia. However, after years running the studio, there has yet any evaluation is completed to measure whether the approach of DoA is successfully achieved.

Thus, it is important to understand whether the Architectural Design VI course is able to the approach of DoA. Therefore, the objective of this paper is to evaluate whether the course can achieve the architecture approach of DoA, National Architecture Identity, is achieved. A questionnaires survey methodology was adopted in this study in which the respondents were the final semester students in two different batches (session 2015/2016 and 2013/2014).

2. National Architecture Identity

UKM is a university that reflects the national identity of Malaysia, which can be observed in its mission 'To be the learning centre of choice that promotes the sovereignty of Bahasa Melayu and internationalises knowledge rooted in the national culture' *('Menjadi Universiti terpilih yang memartabatkan bahasa Melayu serta mensejagatkan ilmu beracuan budaya kebangsaan')* [1]. Being a 'national' university, the Department of Architecture (DoA) UKM has designed its program to promote Malaysia Architecture Identity and at the same time to ensure proper integration of its architecture direction with all the requirements in LAM.

Therefore, DoA has set a vision which is 'towards becoming a recognized academic institution in the global level for being an excellent institution, as a professional learning center, as well as creating research and development that is based on national architecture identity' [2, 3]. Thus, four strategies are outlined to achieve this goal, and it is consistent with the expertise possessed by academics at the Department of Architecture UKM, they are [2, 3]:

2.1. Community

'Community as a major patron of architecture in which a completed design takes into account the aspects of improving community connection, increasing the level security, reducing the level of emotional disorders and having healthier community'.

2.2. Sustainability

'Application of sustainable elements in architecture design covering the aspects of climate, energy, materials and economic'.

2.3. Heritage

'Conserve, appreciate and apply the architectural heritage of Malaysia in architectural design'.

2.4. Moral and ethical

'Awareness in architectural design that moral and ethical values are related to the belief as well as the culture of Malaysia communities'.

3. Program Structure

The four 'National Architecture Identity' strategies as stated earlier are built into the six semester of the program, particularly in architectural design courses. In the first year (Architectural Design I and II), the focus is on the Strategy 3 (Heritage) where the students are exposed to the architectural heritage of Malaysia. In their second year (Architectural Design III and IV), the focus is on Strategy 4 (Moral and Ethical). In the final year (Architectural Design V and VI), the studio emphasizes on two strategies: Strategy1 (Community) and Strategy 2 (Sustainability) [3].

While the strategies are important to the program, it is also compulsory for the program to comply with requirements by LAM as stated in The Manual of Accreditation for Architecture Program (MAAP). According to MAAP [4], for LAM Part 1, it lists 5 aspects of architectural knowledge and skills that are required. They are:

    i.   Design

    ii.   Technology and environment

    iii.   Cultural Context

    iv.   Communication

    v.   Management and Practice

While it is a requirement in the program to comply with the requirements by LAM, it is also compulsory to comply with additional requirements by the university and faculty. Figure 1 shows the distribution percentage of credit hours for the program. Credit hour for the university/faculty courses is 18% of the total credit hours of the program, while 82% of the courses directly related to the required 5 aspects of architecture. It is the requirement by LAM that other non-core courses such the university/faculty courses to be between 10 – 15 % [4], thus UKM is considered to be slightly higher than the limit outlined by LAM. Nevertheless, after the accreditation process, LAM found the percentage is acceptable.
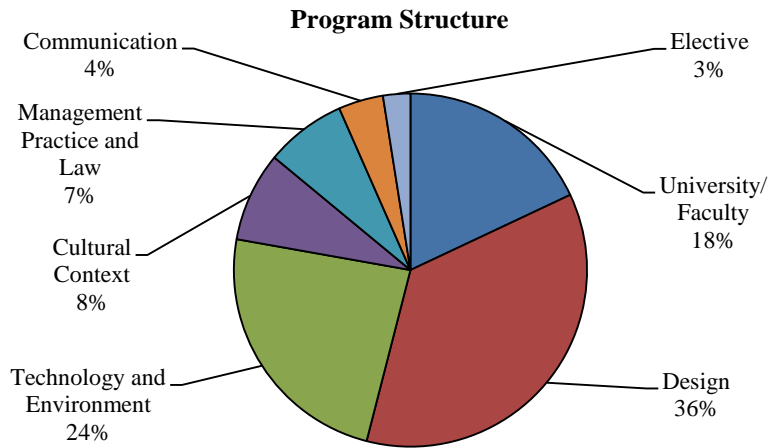
Fig. 1. Design scale and complexity matrix [1].

The design aspect constitutes the highest percentage which is 36%, followed by technology and environmental aspect, 23.8%. These two aspects are more than half of total credit hours. This is to ensure that students are equipped with adequate skills and knowledge in design and technology aspects. Being at the highest percentage, it describes the importance of the design aspect in the architectural program.

The learning of the design aspect is completed using 'studio method'. The 'studio method' uses project-based learning approach that mainly occurs in architectural studio. The architectural studio method is the common learning approach in all architectural schools throughout the world. The studio is a large room that equipped with computer workstations and drawing tables to enable students to work independently on projects. The studio learning process is under lecturers' supervision, usually more than one. The method has been commonly applied and known to be effective in teaching design course if appropriately conducted [5, 6].

The architectural studio method has also been tested and applied to other fields, including engineering education. The application of this method in engineering education showed that the studio method can be very effective in teaching design concepts [7].

As stated in The Manual of Accreditation for Architecture Program (MAAP) [4], it is also a requirement that the program ensure the progression of the scope and complexity of learning is in accordance with the level of studies. Thus it is important to ensure the design scale and complexity matrix is based on 'incremental difficulty'. In order to fulfil these requirements, the program is carefully designed according to design scale and complexity matrix.

Figure 2 shows the increasing project complexity and project scale, from a production of simple design output such as sculpture and furniture in the first

semester, to a multi-story habitable building of around 5-storey height during the final semester.
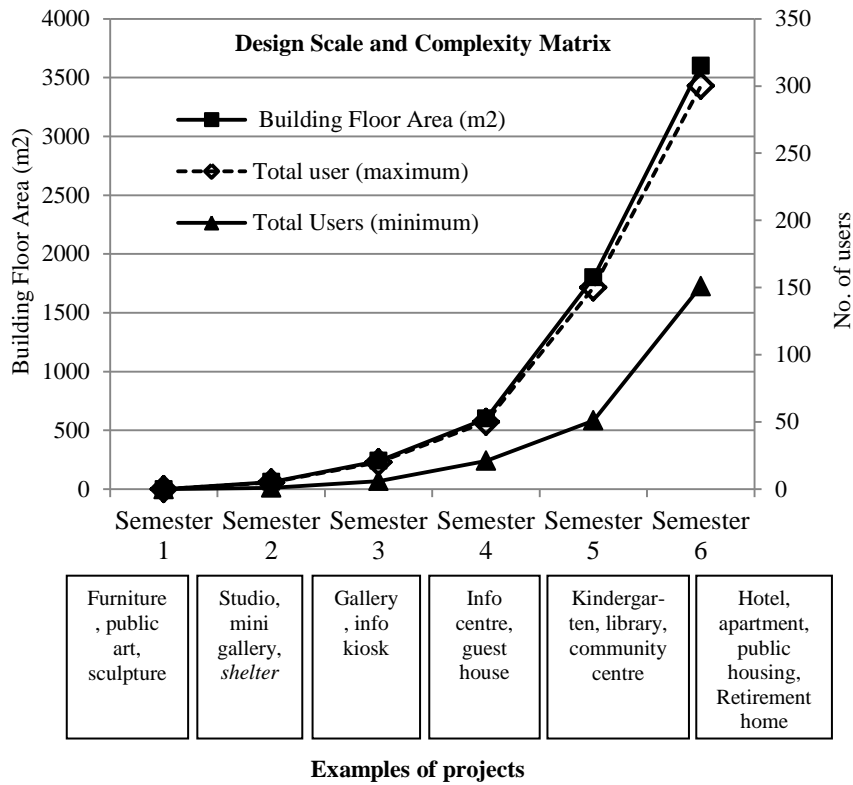

Design Scale and Complexity Matrix

Semester 1	Semester 2	Semester 3	Semester 4	Semester 5	Semester 6
Furniture, public art, sculpture	Studio, mini gallery, *shelter*	Gallery, info kiosk	Info centre, guest house	Kindergarten, library, community centre	Hotel, apartment, public housing, Retirement home

Examples of projects

Fig. 2. Design scale and complexity matrix [1].

Each of the projects in all semesters is designed to suit the goal of DoA that is based on 'National Architecture Identity'. And, the final semester Architectural Design VI course would be the ultimate description of whether the four strategies as outlined by the program are achieved. It is common for researchers to use large project either in final year or throughout the program to evaluate the outcome of a program [8, 9].

However, it is important to note that the focus of Architectural Design VI is on the Strategy 1 (Community) and Strategy 2 (Sustainability), with the keywords of 'innovation' and 'practicality' [2, 3]. Therefore, the students are required to demonstrate innovations and design practicality in their design projects in order to achieve the four strategies of 'National Architecture Identity, particularly on the Strategy 1 (Community) and Strategy 2 (Sustainability).

Being the final design studio course, Architectural Design VI is designed to explore and boost the potential of each of the students through a single design project. The project is sub-divided into four different tasks: site analysis (group work), precedent study (can be either group or individual work), building design

proposal (individual) and interior-design proposal (individual). The design development process is completed through multiple tutorials and design presentations, in which it will end with an external design review process.

4. Research Methodology

The methodology adopted for this study was a combination of questionnaire survey and observation. The observation occurs throughout the semester 6 by the author (one of the lecturers in the course). The questionnaire surveys were distributed to all students in the course. The answers were rated using a 5-point Likert scale: 1-not appropriate/ not achieved, and 5-very appropriate/successfully achieved.

The questionnaire surveys were distributed during an external review process that occurs after the completion of the 14-week semester. At this time, the students' marks already were finalised by the lecturers and endorsed by an internal review process. The internal review process involved all lecturers in the DoA, while the external review process involved 3-4 panels, which have a combination of professional architects from industry and academicians from other universities.

Two batches were involved in this study; they were the final semester students in session 2015/2016 and 2013/2014. The 2015/2016 batch was consisted of 11 students while the other was 12. Out of 11 students in batch 2013/2014, only 8 students answered the survey. For the other batch, 7 out of 11 students answered the survey.

The studio project for 2015/2016 batch was 'Public Housing Project' while the studio project for 2013/2014 was 'Retirement Home Project'. Therefore, the technical complexity for 'Retirement Home Project' is more than the 'Public Housing Project';', however, the habitable unit design complexity (apartment design) is greater in the 'Public Housing Project'. The level of social complexity for both projects was approximately similar. The 'Public Housing Project' focused on retired people while the 'Public Housing Project' focused on low-income families. For both batches, the external reviewers found that all students were passed, and the quality of the works complied with the minimum requirements of the program.

It is important to note that the 2015/2016 batch was the students whom failed in their first attempt in Architectural Design VI in the previous semester. The course was offered in the following semester to ensure better supervision through a smaller number of students, and the project was redesigned to be appropriate for the students but still complying with the LAM requirements for accreditation and program learning outcomes.

5. Analysis and Findings

This study focuses on five (5) questions as in the questionnaire survey. They are: appropriateness of the studio project type, and four questions on whether the course has achieved the objectives of the four strategies of 'National Architecture Identity'.

5.1. Appropriateness of studio project

Two graphs in Fig. 3 show that, generally, students agreed that the projects that were designed for the course are appropriate with only three students selected '3' and none selected '1' or '2'. Thus, it can be concluded that the studio projects for both batches were appropriate for the final semester students. This finding also suggests that the projects are manageable to the students.
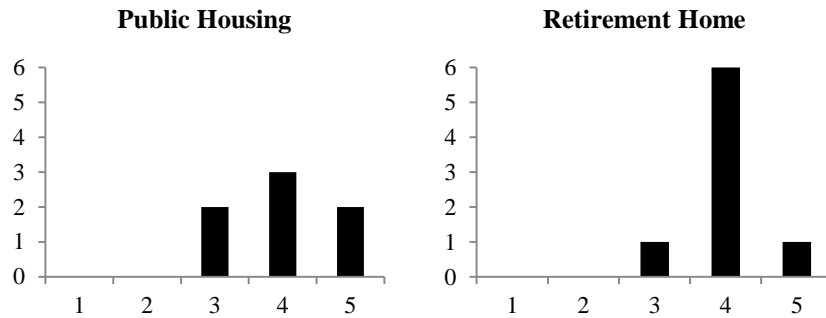
Public Housing   **Retirement Home**

Fig. 3. Appropriateness of retirement home and public housing projects.

5.2. Achievement of the four strategies

5.2.1.   Strategy 1: Community

The graph in Fig. 4 shows that, generally, students agreed that the projects have achieved its objective of Strategy 1, Community. Out of 15 students, 12 students have selected either '4' or '5'. This finding is expected as 'Community' was one of two main focuses of this particular course, and it was consistent with the objective of the buildings which are to cater for the needs of either retired people or people with low income.
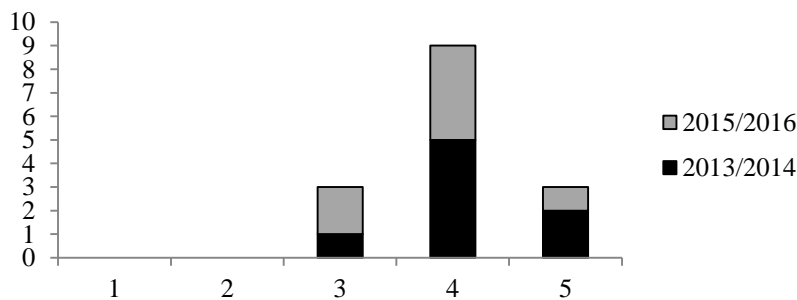

Fig. 4. Strategy 1: Community.

5.2.2.   Strategy 2: Sustainability

Similar to the above, this finding is as expected since 'sustainability' was one of two main focuses in this particular semester. The result is not as good

as Strategy 1 (Community) was due to the projects not specifically addressing the sustainability as the main design issue. Nevertheless, the students are required to have at least a single board for sustainability diagram presentation to ensure that students are aware of sustainability issues in building design (Fig. 5).

Being the secondary issue, the students may not put this strategy as their main design objective. However, through author's observation during final presentation, generally, the students have solved sustainability's issues considerably well. This can be clearly observed in their response to the local environmental context such as sun orientation and natural ventilation.
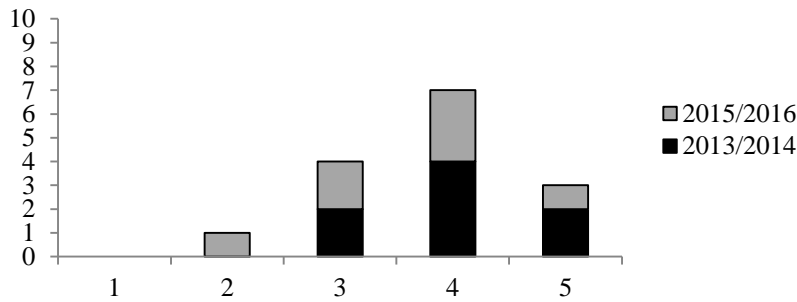
Fig. 5. Strategy 2: Sustainability.

5.2.3. Strategy 3: Heritage

Generally, the course achievement in incorporating Strategy 3 (Heritage) in the building design was not as successful as the other strategies as can be seen in Fig. 6. This finding is expected for this particular course due to lack emphasis on heritage issue in this final semester course. Additional to that, the students tend to design modern building, and the site context was in an urban context with no heritage element. However, it is important to note that this strategy has been built in the first-year studios, and it was not compulsory for the students to incorporate or discuss the heritage issues in their final semester building design.
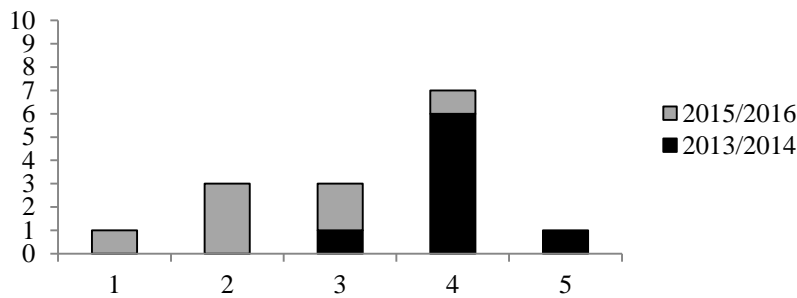
Fig. 6. Strategy 3: Heritage.

5.2.4. Strategy 4: Moral and Ethical

Similar to Strategy 3, Strategy 4 (Moral and Ethical) was also not the main focus in this course. However, according to Fig. 7, the students agreed that the project, generally, achieved the objective of Strategy 4. This was due to students' exposure to the local authority and building bylaw requirements which were under the Strategy 4.

Even though, the students were not required to explain or described this strategy in their presentation boards, but the requirements to design a building that are practical and comply to the local authority and building bylaw requirements was compulsory. Additional to that, exposure on architect's obligation and ethic to incorporate universal design in building such as the provision of parking and ramp for people with disability also related to Strategy 4.
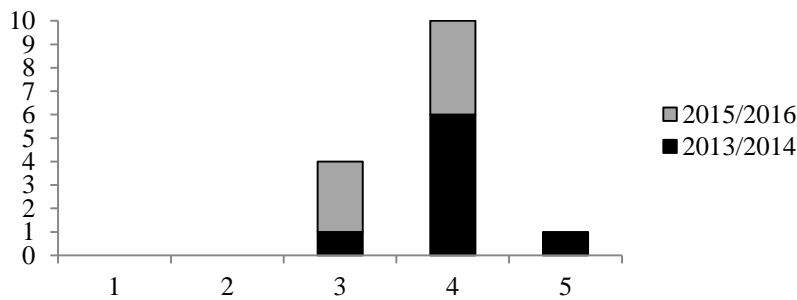

Fig. 7. Strategy 4: Moral and ethical.

6. Conclusions

The findings of the study show that all the four strategies to fulfil the department's goal to incorporate 'national architecture identity' element in its program were successfully achieved in the completed Architectural Design VI course.

The achievement in Strategy 1 (Community) is found to be the most significant among the four strategies. This is due to the nature of the buildings which directly attempt to solve the important community's issues: the needs for retirement home and public housing for retirees/senior citizens and people with low household income, respectively.

The achievement in Strategy 3 (Heritage) is found to be less significant as in Fig. 5. This is expected since this strategy is not the main focus in this course, and this strategy has been introduced and emphasized in Architectural Design I and II, in their first year.

Acknowledgement

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